Remarks

Claim 21 has been amended to correct a typographical error.

Obviousness Rejection (35 U.S.C 103)

Claims 21-27 were rejected as being unpatentable over Scott et al (U.S. 4,158,738) in view of Takuma (EP0111784) and D.H Meyer (U.S 3,584,039).

Applicants would like to respectfully point out that in order for the examiner to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations(MPEP § 2143).

Applicants wish to point out that the combination of references do not teach all the claim limitations. In fact, the references are missing limitations and teach away from other claim limitations.

For example, all the references that the examiner cited do not teach the limitation of terephthalic acid and isophthalic acid being less than 5% in the crude carboxylic acid slurry composition. In other words, applicants process is not a TPA purification process as all the references cited. Therefore, the processes cited by the examiner are TPA purification processes while the applicants' process is related to purification of acids other than TPA.

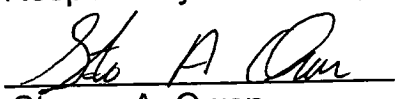
In addition, the references cited by the examiner do not teach a solid liquid separation zone in between the two oxidation steps. In fact they all teach away from such a concept. In zetlin, the solid liquid separation step is after both oxidation steps, and in Takuma it is specially stated that the solid-liquid displacement step takes place after both oxidation steps. For example, the abstract of Takuma states:

"A process for producing terephthalic acid suitable for use in direct polymerization, which comprises oxidizing p-xylene with molecular oxygen in an acetic acid solvent in the presence of a heavy metal compound and a bromine compound, wherein after a main reaction step of oxidizing at least 90 mole % of p-xylene fed has been performed, (1) a first purifying step of feeding a gas containing molecular oxygen to the oxidation reaction mixture obtained from the main reaction step in such a proportion that the concentration of oxygen in the off-gas becomes at least 0.5% by volume and smashing the oxidation reaction mixture at a temperature of 140 DEG to 230 DEG C. to decrease the average particle diameter of terephthalic acid by at least 20% from its average particle diameter before smashing, and (2) a second purifying step of feeding a gas containing molecular oxygen to the slurry from the first purifying step in such a proportion that the concentration of oxygen in the off-gas becomes 0.05 to 5% by volume, and contacting the slurry with the molecular oxygen-containing gas at a temperature at least 10 DEG C. higher than in the first purifying step and within the range of 180 DEG to 300 DEG C., **are performed successively, and the resulting purified slurry is subjected to solid-liquid separation to recover terephthalic acid."** Emphasis added.

Applicants wish to point out that the reference specifically teaches that the purified slurry after going through two steps of oxidation is sent to a solid liquid separation zone. Scott teaches that the solid liquid displacement zone must be after the crystallization step. None of the references teach that the solid liquid displacement zone should be in-between the two oxidation steps.

Therefore, in conclusion, applicants respectfully state in that the only way to get applicants' process from the cited prior art is to use applicants' invention as a template in hindsight to reorder the process steps in the cited art. At the same time, one would need to disregard the cited references specific teachings to where the process steps should be. Then, finally to arbitrarily decide that the reordered process will be used in the purification of other carboxylic acids other than TPA. Such hindsight reconstruction is impermissible. In re Fritch, 972 F.2d. 1260, 23 U.S.P.Q. 2d 1780 (Fed. Cir 1992) states "[I]t is impermissible to use the claimed invention as an instruction manual or 'template' to piece together the teachings of the prior art so that the claimed invention is rendered obvious.....This court has previously stated that '[o]ne cannot use hindsight reconstruction to pick and choose among the isolated disclosures in the prior art to deprecate the claimed invention". For this reason applicants respectfully state that there is no primia facie case of obviousness and the rejection should be withdrawn.

Respectfully submitted,



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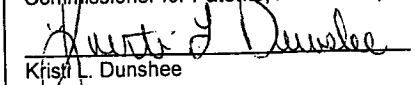

Kristi L. Dunshee

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Date